The following rarities have also been recorded:—

Appias lalage lalage, Doubleday. Previously recorded only from Summerhill and the Glen in May, 1938. Fresh record from Sanawar in 1942.

Amblypodia alemon, de Niceville. Simla, 1940. Recorded once before.

Virachola perse perse, Hew. Sanawar, 1941. Recorded once before some years ago in the Kalka neighbourhood.

KETTI, NILGIRIS, M. A. WYNTER-BLYTH.
5th October, 1942.

XIX.—NOTES ON TWO MAJOR CATERPILLAR PESTS OF *EUGENIA JAMBOS* (ROSE APPLE).

(*With a plate*).

Eugenia jambos is a favourite plant in most private gardens in Travancore, grown for shade, ornament and for its sweet rose-scented fruit. The tree puts forth fresh shoots twice in the year after the S.W. and the N.E. monsoons. When fresh tender shoots with small copper coloured leaves appear in profusion, they are subject to the attack of a number of insects, chief among which are the two leaf-eating caterpillars described in this paper. Among others are the Lasiocampid caterpillar *Metanistria hyrtaca* Cr., the Geometrid *Thalassodes flavifusata* Wlk, the Tortricid *Homona coffearia* N., a shoot boring caterpillar (unidentified), a leaf miner (unidentified), a species of Apoderus twisting up the leaf tips for oviposition, etc.

The two major caterpillar pests are the Noctuid *Bombotelia delatrix* Guen, and the Eucosmid *Argyroploce mormopa* Meyrick.

1. **Bombotelia (Eutelia) delatrix** Guen.

Life-history.—Eggs are laid singly (Fig. 1) both on the upper and on the lower surfaces of tender foliage. The egg (Fig. 2) is circular, 1.3 mm. in diameter and planco-convex. Two distinct regions can be made out—a thin ring-like peripheral region, closely adherent to the leaf surface and the central region. The central region is slightly convex and is of a creamy white colour. Fine radial striations start from the centre of the egg and radiate towards the periphery.

The egg hatches in 3-4 days and the larva issues out through a slit at the edge of the central region. The newly-hatched larva is 2 mm. long and is light yellow, with a slight greenish tinge. It starts eating small holes in the tender leaf and, after a day or two, drops to the leaf below by means of a slender thread. After the first moult, the caterpillar begins to feed voraciously. It feeds mostly at night, remaining quiescent on the leaf throughout the day, and gets full-grown in 12-14 days.

The full-fed larva (Fig. 3) is 25 mm. long and about 6 mm. broad. The colour is still yellowish green, the larva not undergoing any change in colouration during its growth. The head is of the same colour as the body and it is only just before pupation that the prothoracic shield becomes at all distinguishable. A narrow whitish longitudinal subdorsal line becomes faintly visible on each side after the second moult. In the full-grown larva these lines are more distinct and are seen to extend from the prothorax to the anal segment. There are five pairs of prolegs and the crochets are uniordinal and arranged in mososeries. (The caterpillar of the present species can be easily distinguished from that of *B. jocosatrix*, a common pest of mango in Travancore, by the absence of the small purple spots on the somites, so characteristic a feature of the latter).

Prior to pupation, the caterpillar turns pinkish and the head plates become slaty grey. The caterpillar constructs a loose cocoon of silk covered over by pellets of excreta. The pupa (Fig. 4) is 13 mm. long, 5 mm. broad, and dark brown in colour. Pupal period about 13 days. (For a description of the moth (Fig. 5) vide Hampson's Moths, Vol. II, p. 391).

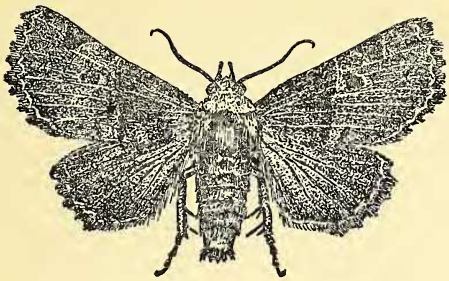
Natural enemies.—Though all the larvae collected from the affected trees, and reared in the insectary looked apparently healthy and pupated, moths failed to emerge from 50% of the pupae, in every one of which a large oval pupa of a Tachinid fly was noticed. This was also the case in a number of larvae reared from eggs, even though the greatest care was taken to see that the fly had no access to the caterpillars. It would appear that in the case of this Tachinid (as in certain others) large numbers of very minute eggs are laid on the tender leaves (the food of the host) and that the eggs with the contained fully-formed embryos are swallowed by the caterpillars during the process of feeding, and the embryos get liberated in the alimentary canal. This point, however, requires further investigation.

Economic Status:—The caterpillar is a major pest of *Eugenia jambos* as the damage to tender foliage is often very serious. The pest has also been found to be very destructive to young plants of Eugenia javanica.

2. **Argyroploce mormopa** Meyrick (*Eucosmidae*).

Life-history:—Eggs are laid singly on the upper and lower surfaces of tender foliage. The eggs are circular with a diameter of 1.02-1.1 mm. and are divisible into a central slightly convex embryonic part and a narrow very thin marginal part as those of *Bombotelia delatrix* from which, however, they can easily be distinguished by the absence of the radiating lines so characteristic of the latter.

The incubation period of the egg is 4-5 days. The newly-hatched larva is 1.5 mm. long with a brownish green body and a black massive shiny head. On hatching, the larva webs up the very tender leaves at the apex of the young shoot and begins to eat holes through the leafy tissue. After the first moult, the larva turns pale pink, the head becomes dark brown and the prothorax brown. The



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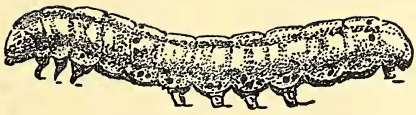

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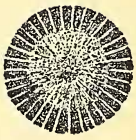

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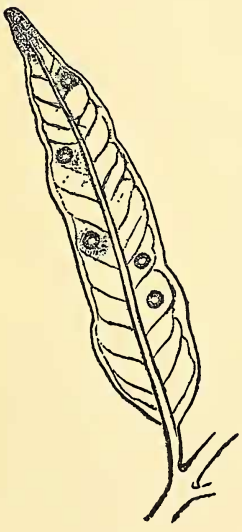

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K. S. Padmanabha Aiyar—Caterpillar Pests of *Eugenia jambos*.

(For explanation see end of Note).